642.

~~330.c1~~

THE MOUNTAIN PINE BEETLE SITUATION IN CRATER LAKE NATIONAL PARK SPRING-1930

F.P.KEEN
MEDFORD, OREGON
APRIL 26,1930

FILE COPY
FOREST INSECT LABORATORY
UNIVERSITY OF CALIFORNIA,
BERKELEY, CALIFORNIA.
330. c1

The Mountain Pine Beetle Situation in Crater Lake National Park Spring-1930

By
F. P. Keen
Entomologist
U. S. Bureau of Entomology

For the past five years the National Park Service and U. S. Forest Service have been successfully combatting the mountain pine beetle invasion of the more valuable lodgepole stands in the southern portion of Crater Lake National Park. While these recreational and scenic areas were being protected, the more remote lodgepole forests to the north were being from 70% to 90% destroyed.

The peak of the menace to the south side areas was probably reached in 1929 when 23,000 infested trees were treated in these areas and 4000 trees in the Middle Fork - East Fork plateau left untreated due to commencement of the flight period. This work was very successful in reducing the infestation. Fully 80% reduction was secured on the areas treated, and although a large number of trees were killed, the complete destruction of the lodgepole stands was prevented.

In September, 1929, the writer examined the park areas and reported on their condition. The points brought out in that report were:

(1) That infestation in lodgepole in the park and neighboring forested regions was so general and widespread that complete extermination of the beetles through control work could not be hoped for.

(2) That the past control work on the valuable recreational and roadside areas in the southern part of the Park had been uniformly successful in reducing the losses and preventing their complete destruction.

(3) and, on account of the aesthetic values involved, the tremendous fire hazard from beetle killed timber and the menace from dead trees along roads and in campgrounds, it was urged that the protection of these areas be continued until the peak of the epidemic had past and these areas were no longer in danger.

At the request of the National Park Service another examination of the area was made from April 21 to 24, 1930, to determine whether there had been any change in the status of the infestation since last fall and whether or not effective results could be expected from control work during the present season. On this examination the writer was assisted by Mr. W. J. Buckhorn of the Bureau of Entomology and Chief Ranger, Wm. C. Godfrey, of the National Park Service.

Condition of Beetle Broods.

The examination of infested trees showed that there had been considerable change in brood development since last September, but not to the extent of producing an extra generation of beetles. On account of the long warm fall and early spring, it had been feared that an extra generation of beetles might

develop, but this had not occurred. Trees which upon examination in September showed new attacks and eggs now had developed broods to the half grown larvae stage. The majority of the broods were in the half-grown larvae stage indicating that emergence would not occur much, if any, before the normal time in July.

Neither had there been any increase or reduction in the number of infested trees found last fall. The attacks on a few trees had been unsuccessful, but a few others had been attacked after the examination in September so that the net number was about the same. There was no evidence of winter or fungus killing of the broods and such trees as were found showed perfectly normal condition, except for a high degree of parasitism.

The Present Situation on the Various Units.

The present examination brought to light additional information to that secured last fall, some of which has a very important bearing on the control strategy. The most important discovery was that the infestation in the extreme eastern and western portions of the park, which last fall was thought to be still in the active epidemic stage was found to have gone past that condition and that the areas are now "burned out" with 70 to 90% of the stand killed and only a few beetle stragglers left. This means that the south side areas are no longer menaced by the invasion from the north which for so many years has been scattering beetles into the southern parts to reinfest areas cleared through control work. The end of the epidemic now seems much nearer at hand than it did from the inspection of last fall when these old epidemic areas were only viewed from a distance.

Briefly reviewing the conditions in the various units:

Sand Creek-East Entrance unit.

This unit was reported in good condition last fall. The present examination confirms that report. The area east of Sand Creek which was thoroughly treated by the Forest Service last year is exceptionally free from new infestation. Nothing more than an endemic infestation of a very few trees to the square mile exists at the present time, a condition which extends throughout the lodgepole stand for many miles to the south and east. It is very doubtful if this condition could be improved by any further control work at the present time. It is recommended, however, that the area be examined each year so that any tendency to again develop epidemic proportions can be promptly discovered and stamped out.

On the west side of Sand Creek above Lost Creek Station there are a few groups of infested trees. This area was not reached by the control work last year and it is recommended that these be disposed of, if time and money permit.

The Middle Fork - East Fork, Anna Creek Plateau.

On this unit 4000 infested trees were unavoidably left untreated at the end of the 1929 control work. From these, it was estimated last fall, that 6000 newly infested trees had developed. The area was again examined this spring and a strip count indicated that the infestation would run from 4000 to 6000 trees. This is now the only active concentrated infestation left in

the southern portion of the Park. The clean-up of this center should go a long way towards ending the beetle epidemic in the Park since other heavy centers are more than twenty miles distant in the Deschutes National Forest. On this unit the beetles are also killing many fine white pines which are mixed with lodgepole in the stand, and white pines on the nearby rim road ridge are also being killed.

The Munson Valley Unit.

This is a very valuable scenic area adjoining the main road from Anna Spring to the Lodge. Several groups of infested trees were found, some with as many as 14 trees in the group. This area should be recleaned during the present season.

The Pumice Flat Unit.

Last fall this isolated area was examined and found to have a few centers of infestation. On account of its inaccessibility and the belief that the sources of reinfestation were still too general to permit of ending the epidemic it was not recommended that control be attempted in this unit. Now that the end of the epidemic appears to be more nearly in sight, it would seem a wise policy to stamp out all active centers in the southern part of the park. Therefore, the clean-up of this area should be included in the spring program.

The Anna Spring Unit.

This is an important scenic area along the Klamath Falls-Anna Spring road and should be given full protection. The control work of last year was very effective here but a few groups of newly infested trees should be disposed of.

The White Horse Unit.

Considerable reinfestation has developed in this unit following last spring's control work. It is an important roadway area and would become a tremendous fire hazard if the lodgepoles were allowed to be killed along the Medford road. It is strongly urged that this unit be recleaned.

The Castle Creek Unit.

There are many centers of infestation through the Castle Creek basin, in places not reached by last year's control work. Last fall the groups of beetle killed trees appearing over the divide between Castle Creek and North Fork Castle were thought to be the advance scouts from the heavy centers to the north. Upon closer examination this spring, it was found that instead of being the advance scouts, these groups were in fact the "rear guards", and that the old centers were completely played out. This being the case, it looks very hopeful for the securing of a final and permanent cleanup of the Castle Creek basin.

Total present infestation.

Without very exhaustive and expensive surveys, the amount of infestation

in lodgepole stands can only be approximated. Such surveys have not been made in Crater Park so that the following estimates must be considered only as rough approximations based on what evidence the writer was able to secure. They are believed, however, to be sufficiently close for the planning and financing of control operations.

Units	Total number infested trees.
Sand Creek	400
Middle Fork-East Fork	6000
Munson Valley	400
Pumice Flat	600
Anna Spring	500
White Horse	700
Castle Creek	900
Total	9,500

On account of the scattered character of the infestation the control cost per tree will average higher than last year, and will be pretty close to one dollar per tree. On this basis $9,500. should be sufficient to make a very thorough clean-up of the south-side park areas, with a very good chance of stopping the present epidemic.

In order of importance, the Castle Creek and White Horse units would appear to take first place followed by the other units from west to east as follows:

1. Castle Creek
2. White Horse
3. Anna Spring
4. Munson Valley
5. Middle Fork-East Fork
6. Pumice Flat
7. Sand Creek.

In case of shortage of funds the last two units could be left out of this year's program without seriously endangering the other areas.

Summary of condition in the Park.

The mountain pine beetle epidemic of the past ten years has killed from 70 to 90% of the lodgepole stand over the entire northern portion of the park. The same is true of the stands west of the lake on the North Fork Castle Creek and south of the lake on the Munson Creek-Middle Fork Anna Creek Plateau. Through much of the remaining stand from 20 to 50% of the lodgepole has been killed as well as many white pine and a few white bark pines along the rim.

The only areas which have not been completely riddled by beetles are those on which control work has been consistently carried on during the past five years and which fortunately from the recreational and scenic standpoints are the most important areas within the park.

In the report of last fall the writer urged the continued protection of these valuable areas and estimated that $5000 would meet the requirements for control during the spring of 1930. From the recent examination it appears that the final suppression of this epidemic is nearer at hand than had been

previously supposed. With $4500 more the inaccessible southside areas can also be reached and the cleanup of all epidemic centers made a complete and thorough one. Therefore, it is hoped that Park Service can allot $9500 for the suppression work of this spring, making this fund immediately available.

Medford, Oregon
April 26, 1930

F. P. Keen
Entomologist